

Sub C17
between the application and a connection-oriented device driver associated with the connection-oriented device;

representing to the application, over a second known application-level interface associated with the integrating component, the data and data control characteristics of the underlying connection-oriented device;

receiving a command from the application over the first known application-level interface;

receiving a command from the application over the second known application-level interface; and

82
by the connection-oriented device driver, interacting with the integrating component in order to execute said received commands so that the application may take advantage of the connection-oriented I/O subsystem and use the connection-oriented device using the known application-level interfaces and without requiring the application programmer to program to an interface of the connection-oriented device driver.

Sum
D17
2. (Amended) A method as recited in claim 1 wherein the integrating component has a connection interface for making connections with underlying connection-oriented devices, and a data transport interface for interacting with a data transport component, the method further comprising the steps of:

83
the data transport components interacting with applications and the data transport interface;

sending, to the integrating component, instructions for directing data and data control information over a specified data transport component; and

receiving, from the integrating component, an identifier that can be used by the application to access the data over the specified data transport component.

3. (Amended) A method as recited in claim 2 wherein:

the integrating component implements a connection manager interface that may support a connection manager component and the data transport components interact with the integrating component over the connection manager interface to effectively register their respective data types; and

the method further comprises the steps of:

receiving from the integrating component a redirection command specifying a data type; and

interacting over the connection manager interface of the integrating component in order to determine the correct data transport component based on data type.

5. (Amended) A connection-oriented driver subsystem where connection control information is communicated to an application through a connection interface while data and data control information is communicated through a transport interface, the driver subsystem comprising:

a connection-oriented device driver controlling a connection-oriented hardware device;

a data transport capable of communication with an application;

an integrating component that interfaces with the connection-oriented device driver and the data transport, said connection-oriented device driver and said data transport serving as clients to said integrating component, wherein said integrating component is positioned between the application and the connection-oriented device driver, said integrating component

providing an abstracted connection interface that is available to a client that allows the client to create a connection with a desired location using the connection-oriented hardware device; and

providing facility for associating the connection with the data transport, thereby allowing the client to send and receive data and data control information over the connection; and

a proxy client component that interfaces with the connection interface and the transport interface of the integrating component as a client, said proxy client component:

Sub C27
B3

receiving abstract connection creation and control commands from the application and implementing said commands through use of the connection interface to create and manage the connection;

causing redirection of data and data control information from the connection through the proxy client component to a designated data transport designated in one of the abstract connection control commands; and

returning to the application, in response to a previously received connection control command, an identifier to be used by the application for receiving data and data control information from the designated data transport so that the connection control information is communicated to the application through the proxy client component while the data and data control information is communicated to the application through the designated data transport.

Sub C³ 7

7. (Twice Amended) A computer program product for interacting with known application-level interfaces and an integrating component of a connection-oriented I/O subsystem in order to represent the characteristics of an underlying connection-oriented device to an application and allow an application to take advantage of the connection-oriented I/O subsystem over the known application-level interfaces without requiring the application programmer to program to a new interface, said computer program product comprising:

a computer-readable medium; and

computer-executable instructions carried on said computer-readable medium for performing the steps of:

representing the connection control characteristics of the underlying connection-oriented devices to an application over a first known application level interface associated with the integrating component, wherein the integrating component is positioned between the application and a connection-oriented device driver associated with the connection-oriented device;

representing the data and data control characteristics of the underlying connection-oriented devices to the application over a second known application level interface associated with the integrating component;

receiving a command from the application over the first known application-level interface;

receiving a command from the application in the second known application-level interface; and

by the connection-oriented device driver, interacting with the integrating component to execute said received commands.

Sub
Of 8. (Amended) A computer program product as recited in claim 7, wherein the command received from the application over the first known application-level interface comprises a connection creation command, and wherein the computer-executable instructions operate to perform the steps of:

10 interacting with the integrating component to create the connection;

receiving a redirection command to send data and data control information received over the connection to a designated data transport;

causing redirection of data and data control information from the previously created connection to a designated transport; and

returning to the application an identifier to be used by the application for receiving data and data control information from the designated transport.

10. (Amended) A method for representing to an application the characteristics of an underlying connection-oriented device over known application-level interfaces and allowing an application to take advantage of a connection-oriented I/O subsystem having an integrating component over the known application-level interfaces and without requiring the application programmer to program directly to the integrating component, the method comprising:

separating connection control characteristics from data and data control characteristics received from an underlying connection-oriented device;

representing to an application, over a first known application-level interface associated with the integrating component, the connection control characteristics of the underlying connection-oriented device, wherein the integrating component is positioned between the application and a connection-oriented device driver associated with the connection-oriented device;

representing to the application, over a second known application-level interface associated with the integrating component, the data and data control characteristics of the underlying connection-oriented device;

receiving a command from the application over the first known application-level interface;

receiving a command from the application over the second known application-level interface; and

by the connection-oriented device driver, interacting with the integrating component in order to execute said received commands so that the application may take advantage of the connection-oriented I/O subsystem and use the connection-oriented

sub C47

device using the known application-level interfaces and without requiring the application programmer to program to an interface of the connection-oriented device driver.

sub
D17

11. (Amended) A method as recited in claim 10 wherein the integrating component has a connection interface for making connections with underlying connection-oriented devices, and a data transport interface for interacting with a data transport component, the method further comprising the steps of:

the data transport components interacting with applications and the data transport interface;

sending, to the integrating component, instructions for directing data and data control information over a specified data transport component; and

receiving, from the integrating component, an identifier that can be used by the application to access the data over the specified data transport component.

12. (Amended) A method as recited in claim 11 wherein:

the integrating component implements a connection manager interface that may support a connection manager component and the data transport components interact with the integrating component over the connection manager interface to effectively register their respective data types; and

the method further comprises the steps of:

receiving from the integrating component a redirection command specifying a data type; and

56
BPL

interacting over the connection manager interface of the integrating component in order to determine the correct data transport component based on data type.
